



App. No. 10/075,208
Adt. Dated June 23, 2004
In reply to Office action dated N/A

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 **Claim 1 (currently amended):** A location information
2 transmission method for reporting on-road location on a
3 digital map,
4 characterized in that an information provider
5 transmits on-road location information by using road shape
6 data including said on-road location consisting of a string
7 of coordinates representing the road shape of a road
8 section ~~having a length the depends on the situation and~~
9 relative data indicating said on-road location in said road
10 section; and
11 that a party receiving said on-road location
12 information performs shape matching using said road shape
13 data to identify said road section on the digital map and
14 uses said relative data to identify the on-road location in
15 said road section.

1 **Claim 2 (original):** A location information
2 transmission according to claim 1,
3 characterized in that said method uses a string of



App. No. 10/075,208

Amdt. Dated June 23, 2004

In reply to Office action dated N/A

4 coordinates arranging latitude/longitude data of the road
5 point per predetermined distance interval as a string of
6 coordinates representing said road shape.

1 **Claim 3 (original):** A location information
2 transmission method according to claim 1, characterized in
3 that said method uses distance data from a specific point
4 in the road section as said relative data.

1 **Claim 4 (currently amended):** Location information
2 transmission apparatus for exchanging information about the
3 on-road location on a digital map,
4 characterized in that apparatus at an information
5 provider comprises a location information converter for
6 converting transmit on-road location information to road
7 shape data including said on-road location consisting of a
8 string of coordinates representing the road shape of a road
9 section ~~having a length that depends on the situation and~~
10 relative data indicating said on-road location in said road
11 section; and

12 that apparatus at a party receiving the on-road
13 location information comprises a shape matching section for
14 performing shape matching by using said road shape data,
15 identifying said road section on a digital map and

16 identifying the on-road location in the road section by
17 using said relative data.

1 **Claim 5 (original):** Location information transmission
2 apparatus according to claim 4, characterized in that said
3 apparatus uses a string of coordinates arranging
4 latitude/longitude data of the road point per predetermined
5 distance interval as a string of coordinates representing
6 said road shape.

1 **Claim 6 (original):** Location information transmission
2 apparatus according to claim 4, characterized in that said
3 apparatus uses distance data from a specific point in said
4 road section as said relative data.

1 **Claim 7 (original):** A traffic information
2 provision/reception system, characterized in that said
3 system comprises location information transmission
4 apparatus according to claim 4.

1 **Claim 8 (original):** A traffic information
2 provision/reception system according to claim 7,
3 characterized in that said information provider is a center
4 for collecting traffic information in the area and that

5 said party receiving the on-road location information is a
6 center for collecting traffic information in other areas.

1 **Claim 9 (original):** A traffic information
2 provision/reception system according to claim 7,
3 characterized in that said information provider is an
4 infrastructure for providing traffic information and that
5 said party receiving the on-road location information is a
6 car-mounted navigation apparatus.

1 **Claim 10 (currently amended):** A location information
2 transmission method for reporting on-road location on a
3 digital map,
4 characterized in that an information provider
5 transmits on-road location information by using road shape
6 data including said on-road location consisting of a string
7 of coordinates representing the road shape of a road
8 section ~~having a length that depends on the situation~~; and
9 that a party receiving said on-road location
10 information performs shape matching using said road shape
11 data to identify said road section on the digital map.

1 **Claim 11 (previously presented):** The location
2 information transmission method according to Claim 10,

3 characterized in that said method uses a string of
4 coordinates arranging latitude/longitude data of the road
5 point per predetermined distance interval as a string of
6 coordinates representing said road shape.

1 **Claim 12 (currently amended):** A location information
2 transmission apparatus for exchanging information about the
3 on-road location on a digital map,

4 characterized in that:

5 an apparatus at an information provider comprises a
6 location information converter for converting transmit on-
7 road location information to road shape data including said
8 on road location consisting of a string of coordinates
9 representing the road shape of a road section ~~having a~~
10 ~~length that depends on the situation;~~ and

11 an apparatus at a party receiving the on-road location
12 information comprises a digital map and shape matching
13 section for performing shape matching by using said road
14 shape data and identifying said road section of the digital
15 map.

1 **Claim 13 (previously presented):** The location
2 information transmission apparatus according to Claim 12,
3 characterized in that said apparatus uses a string of

4 coordinates arranging latitude/longitude data of the road
5 point per determined distance interval as a string of
6 coordinates representing said road shape.

1 **Claim 14 (previously presented):** A traffic information
2 provision/reception system,
3 characterized in that said system comprises location
4 information transmission apparatus according to Claim 12.

1 **Claim 15 (previously presented):** The traffic
2 information provision/reception system according to Claim
3 14,
4 characterized in that said information provider is a
5 center for collecting traffic information in the area and
6 that said party receiving the on-road location information
7 is a center for collecting traffic information in other
8 areas.

1 **Claim 16 (previously presented):** The traffic
2 information provision/reception system according to Claim
3 14,
4 characterized in that said information provider is an
5 infrastructure for providing traffic information and that
6 said party receiving the on-road location information is a

7 car-mounted navigation apparatus.

1 **Claim 17 (currently amended):** A receiving device for
2 receiving on-road location information on a digital map
3 from a device of an information provision side, said
4 receiving device comprising:

5 a receiver for receiving road shape data including
6 said on-road location consisting of a string of coordinates
7 representing the road shape of a road section ~~having a~~
8 ~~length that depends on the situation,~~ from the device of an
9 information provision side;

10 a digital map; and

11 a shape matching section for performing shape matching
12 by using said road shape data and identifying said road
13 section on the digital map.

1 **Claim 18 (currently amended):** An information provision
2 apparatus for providing on-road location information on a
3 digital map by using a location information transmission
4 method according to Claim ~~[[1]]~~ 10, said information
5 provision apparatus comprising:

6 a location information converter for converting
7 transmission on-road location information to a road shape
8 data including said on-road location consisting of a string

9 of coordinates representing the road shape of a road
10 section ~~having a length that depends on the situation.~~

1 **Claim 19 (new):** A location information transmission
2 method for reporting location information on a digital map,
3 characterized in that:

4 an information provider transmits location information
5 using a shape data including a coordinate string; and
6 a party of receiving side identify said location using
7 said shape data.

1 **Claim 20 (new):** The location information transmission
2 method according to claim 19,
3 wherein said coordinate string represents a
4 geometrically pattern on a digital map.

1 **Claim 21 (new):** The location information transmission
2 method according to claim 19 or 20,
3 wherein said shape data includes a coordinate string
4 indicating a region including a position on which an event
5 occurs.

1 **Claim 22 (new):** The location information transmission
2 method according to claim 19 or 20,

3 wherein said shape data includes a coordinate string
4 indicating a border of a region in which an event occurs.

1 **Claim 23 (new):** The location information transmission
2 method according to claim 19 or 20,
3 wherein said shape data includes a coordinate string
4 indicating points at predetermined intervals.

1 **Claim 24 (new):** The location information transmission
2 method according to claim 19 or 20,
3 wherein content of said shape data is changeable in
4 accordance with a situation of a region indicated by said
5 shape data.

1 **Claim 25 (new):** The location information transmission
2 method according to claim 19 or 20,
3 wherein said party of receiving side implements shape
4 matching using said shape data in order to identify the
5 location.

1 **Claim 26 (new):** A location information transmission
2 apparatus for exchanging location information on a digital
3 map, characterized in that:

4 an apparatus at an information provider includes a
5 location information converter which converts a location
6 information to be transmitted to a shape data having a
7 coordinate string; and

8 an apparatus at receiving side identifies said
9 location using said shape data.

1 **Claim 27 (new):** The location information transmission
2 apparatus according to claim 26,

3 wherein said shape data includes a coordinate string
4 indicating a region including a position on which an event
5 occurs.

1 **Claim 28 (new):** The location information transmission
2 apparatus according to claim 26,

3 wherein said shape data includes a coordinate string
4 indicating a border of a region in which an event occurs.

1 **Claim 29 (new):** The location information transmission
2 apparatus according to claim 26,

3 wherein said shape data includes a coordinate string
4 indicating points at predetermined intervals.

1 **Claim 30 (new):** The location information transmission
2 apparatus according to claim 26,
3 wherein content of said shape data is changeable in
4 accordance with a situation of a region indicated by said
5 shape data.

1 **Claim 31 (new):** The location information transmission
2 apparatus according to claim 26,
3 wherein said apparatus of receiving side implements
4 shape matching using said shape data in order to identify
5 the location.

1 **Claim 32 (new):** A system for providing and/or
2 receiving location information on a digital map, comprising
3 the location information transmission apparatus according
4 to any one of claims 26 to 31.

1 **Claim 33 (new):** The system according to claim 32,
2 wherein said apparatus at an information provider is
3 a center for collecting traffic information in a first
4 area, and
5 wherein said apparatus of receiving side is a center
6 for collecting traffic information in a second area.

1 **Claim 34 (new):** The system according to claim 32,
2 wherein said apparatus at an information provider is
3 an infrastructure for providing traffic information, and
4 wherein said apparatus of receiving side is a car-
5 mounted navigation apparatus.

1 **Claim 35 (new):** A receiving device for receiving
2 location information on a digital map, comprising:
3 a receiving section for receiving shape data including
4 a coordinate string from an apparatus at an information
5 provider;
6 a digital map; and
7 location identification section for identifying the
8 location on said digital map using said shape data.

1 **Claim 36 (new):** The receiving device according to
2 claim 35,
3 wherein said location identification section
4 implements shape matching in order to identify the
5 location.

1 **Claim 37 (new):** An information provision apparatus for
2 providing location information on a digital map, by using

3 the method according to any one of claims 19 to 25, said
4 apparatus comprising:

5 a location information converter for converting a
6 location information to be transmitted to said shape data;
7 and

8 a transmission section for transmitting said shape
9 data.

1 **Claim 38 (new):** An information transmission method for
2 transmitting location information to a device having a
3 digital map, characterized in that:

4 said location information includes a shape data having
5 a coordinate string.

1 **Claim 39 (new):** The information transmission method
2 according to claim 38,

3 wherein coordinates included in said coordinate string
4 are absolute coordinates.

1 **Claim 40 (new):** The information transmission method
2 according to claim 38,

3 wherein a part of coordinates included in said
4 coordinate string is relative coordinate.

1 **Claim 41 (new):** The information transmission method
2 according to any one of claims 38 to 40,
3 wherein said coordinate string is a coordinate chain.

1 **Claim 42 (new):** A coding method for coding an object
2 when information regarding said object on a traffic rout
3 network is transmitted between an information provider and
4 a party of receiving side, characterized in that:
5 said object includes at least a coordinate string;
6 said coordinate string includes a coordinate on a
7 road, wherein at least a part of said road is included in
8 a digital map data of said party of receiving side, and
9 coordinates indicating a shape whose location is capable of
10 being identified at said party of receiving side.

1 **Claim 43 (new):** The location information transmission
2 method according to claim 21 or 22,
3 wherein said information provider transmits
4 information indicating a type and level of said event,
5 adding to said shape data.

1 **Claim 44 (new):** The location information transmission
2 apparatus according to claim 27 or 28,

Appl. No. 10/075,208
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3 wherein said apparatus at an information provider
4 transmits information indicating a type and level of said
5 event, adding to said shape data.